Transformation of the vegetable supply chain in Mar del Plata (Argentina) in the face of raising health concerns

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Introduction

Urban food issue is taking more and more importance in the political agenda (Pothukuchi and Kaufman, 1999; Krausz *et al.*, 2013; Morgan, 2015). A new food equation (Morgan and Sonnino, 2010) is taking shape both in the global North and the global South (Blay-Palmer, 2010; Koc *et al.*, 1999) and the city scale appears relevant to build a food governance oriented toward sustainable food systems (Sonnino, 2009; Perrin and Soulard, 2014). The underlying idea is the design of more sustainable food systems that answer current urban food issues (Viljoen and Wiskerke, 2012; Mansfield and Mendes, 2013).

Agriculture and food systems have long been polarized in the scientific and the public debate by "conventional versus alternative" models (Beus and Dunlap, 1990). There are dual perceptions about the best suited model to go toward the construction of sustainable food systems. However, authors increasingly warn about the risk of restrictive views defending alternative as fundamentally good and conventional as fundamentally bad (Trauger, 2014). Recent research examine the porosity of both models (Deverre, 2011; Le Velly and Dufeu, 2016): intermediary forms and the coexistence of models in local territories is thought as a possible condition to build resilient and sustainable food systems (Visser *et al.*, 2015).

In Argentina, as in many Latin American countries, the dominant agricultural industrial model also identified as the "conventional" one – and the model oriented towards agroecology – the "alternative" one – coexist and confront (Altieri and Toledo, 2011; Cittadini, 2012). The conventional model is deeply rooted in the national foodscape whereas the alternative one developed in the last decades in a context of economic crisis, when various national and local programs aimed to develop agriculture for self-consumption (based on the principles of agroecology) in urban and rural vulnerable households. Then, from mid-2000s, rising health concerns have been put at the forefront of the political and media scene by environmental associations who are strongly challenging the industrial agricultural model because of its high level of pesticide use. The use of pesticides near urban settlements and their health effects are the main cause of conflicts that arose between producers and their neighbors in suburban areas (Pérez *et al.*, 2013). In many urbanized regions of Argentina, the lobbying of these associations resulted in the adoption of municipal laws prohibiting the use of pesticides in a defined perimeter around urban centers (Conti *et al.*, 2013).

This presentation aims at underlying how this kind of municipal order can be a lever or a break to the sustainable development of the vegetable food chains and more globally, of the urban and periurban territory.

Materials and methods

Mar del Plata (700,000 inhabitants), located at 400 km South of Buenos Aires, is surrounded by the second horticultural belt of the country. The city's agricultural belt is a patchwork of intensive vegetable production and intensive cereals and oilseed crops. An urban policy prohibiting the use of pesticides in a radius of 1,000 meters around urban settlements was adopted in 2008.

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In order to understand the undergoing changes i) in the local territory and ii) in the vegetable supply chain we did field visits and we realized 40 open and semi-structured interviews with local actors (vegetable producers, actors of the commercialization, development practitioners and public actors), the study of projects/policy documents, and the review of existing literature.

Changes in the urban and periurban territory

The expansion of Mar del Plata led progressively to an encroaching of urban areas on agricultural land. As vegetable production got more intensive from the 1970s, urban settlements became each time closer. Until the 1990s, periurban dwellers were mainly poor and workers families. But the construction of semi-private neighborhoods in the outskirts of the city attracted middle and upper class families with new expectations toward their natural environment; the number of complaints regarding the spreading of pesticides near human settlements increased. As a result, environmental associations convinced the municipal council to vote an order that prohibits immediately the pesticides in the urban fringe. In front of the difficulty to implement such an order, the council then decided to step backward and to propose a more progressive order leading to the adoption step by step of more environmentally and health friendly practices through the creation of a Municipal program to accompany farmers toward the agroecological transition. Up to now, little means have been provided to implement such a program and very few technical agents are available to provide education on agroecological practices. However, the discussion that arose from the situation led to the implementation of quality controls on vegetables. Hence, there was a shift from agrochemical drift issue to vegetable quality issue.

In a country where the agricultural landscape is dominated by large scale and intensive production, there is very little systematized knowledge on production free from agrochemicals. Conventional producers commonly consider that producing without pesticides is not feasible. Hence, the ones located close from the city and who have the means to move are selling their land to avoid to be subjected to pesticide regulation. Rather than trying to reconnect with consumers, who increasingly distrust conventional production, farmers prefer to invest in other land farther from the city. Smaller ones do not have that the option to move and have to adapt to the changing regulation. Also, when located near urban settlements, farmers are enduring pressure from estate agencies. It order to convince farmers to sell their land, these agencies argue that soon farming will not be possible anymore due to the new regulations. As a result, land use could evolve quickly in the urban fringe.

Changes in the vegetable supple chain

The conventional vegetable supply chain plays a central role in the vegetable supply. It is characterized by intensive agricultural practices, the use of agrochemical inputs, and marketing activities organized for large volumes involving numerous intermediaries. Conventional producers represent the very large majority of the producers of the horticultural belt. Their profile goes from family farmers (most of them of Bolivian origin) having less than 5 ha farms, to entrepreneurs (European descendants) developing vegetable production on up to 70 ha farms. The share-cropping system is common in conventional production. Many Bolivian families enter vegetable production through the share-cropping system with the objective to become land renter or even land owner in the future – it is the process of “Bolivian scale” described by Benencia (1997). The existence of quality controls led to new preoccupations of producers regarding the use of agrochemicals. However, they make their practices evolve more for fear of control than for health concerns. Producers working with share-croppers often worry that share-croppers actually apply the right doses because in case the control, the producer will have to pay the fine. Indeed, share-croppers are sometimes trapped in an intensive productive model. Their objective is to save money to be able to rent land. To ensure satisfaying yields they tend to increase the doses indicated by the land owner. These discrepancies between technical advice and actual practice do not only characterize the share-cropping system. Still technical agents notice that some producers keep on applying too much agrochemical in order to secure the production. Moreover, a best price is given for better-looking vege-

tables, which encourages producers to develop a certain type of farming practices in order to reach those standards. Finally, the conventional vegetable supply chain answers expectations in terms of volumes but it engenders strong reactions from associations of the civil society regarding health issues.

Conversely the alternative model is positively perceived by the civil society. It is characterized by small-scale farming, short-circuits, and produces free from agrochemicals. It was boosted by programs fighting against poverty of which purpose was to ally food production with environmental preoccupation. However this alternative model has difficulties to expand in a context dominated by conventional agriculture. Many producers still need institutional support to keep on producing and selling their produces. Indeed, there is little systematized knowledge, little/no adapted input available in agronomy shops, few agronomists are involved, and the knowledge is mostly created through individuals and informal on-farm tests. Moreover, the consciousness of consumers regarding agroecological production is still low and there are no sufficient outlets to welcome more producers in this alternative model. Hence, the problem is twofold: it is hard technically for small-scale conventional farmers to do a transition toward agroecology and agroecological farmers are sometimes little willing to share their knowledge as each new agroecological producer might be perceived as a competitor. Finally, the alternative model is closer from the society's new expectations regarding food quality but it represents small volumes and it is not accessible to the large majority of consumers.

Intermediary forms emerge or get a greater legitimacy in the context of rising health issues. Two examples are interesting to underline. First, many small-scale vegetable producers find difficult to get interesting incomes through the conventional supply chain because there are many intermediaries involved and small volumes are disadvantages when it is about getting a truck to transport produces. As a compromise between conventional and alternative chains, these producers use of agrochemicals and sell part of their production to neighbors and to nearby vegetable shops. These channels do not achieve to improve the demand for products free of agrochemicals; however, direct contact with consumers is an incentive to use less agrochemical inputs. It is thus a win-win situation: small-scale farmers improve their farming practices without being constrained to specifications, and they have a better income; consumers trust producers for the quality of vegetables they buy at lower price. These producers combine short-circuit with conventional circuits of commercialization through wholesale markets. A second example deals with wholesale markets. Mar del Plata hosts three. Two are located outside the city. One, the oldest, stands within the urban space, which makes it hardly accessible for large trucks; large volumes can hardly enter/go out. Hence, most of producers/retailers operating through this wholesale market are in average of smaller-scale than the ones operating through the two other markets. Many small-retailers agree that vegetable quality is higher there: smaller-scale producers (perceived as having less intensive practices and better harvesting practices), face to face transactions as well as the anchoring in local food supply are mentioned as possible explanations for such a different quality in this wholesale market. Its suitability to local community's expectations, notably in the context of rising health preoccupations, makes that this wholesale market plays an important role in the local food system. But there is a political idea to move wholesaling activities to urban peripheries, which questions its future.

Conclusion

The periurban landscape of Mar del Plata is undergoing changes. Impacts of the municipal order go beyond productive aspects. In this process, small-scale farmers with low financial means find themselves in a delicate situation in between the wish to keep on producing vegetables and the technical dead-end in which they feel they are. The urban policy can be a break to build sustainable local food systems if we consider how estate agencies are taking advantage of the situation. Also, the way the public policy was adopted – without consultation – led to a break between consumers and producers. But this urban policy could also be a lever to build a more sustainable local food system; health concerns could be an opportunity to build a concerted policy for urban and periurban planning. Indeed, there is new consciousness of consumers and producers, although some producers try to improve their practices more for legal than for

health purpose. New intermediary forms emerge or find more legitimacy regarding local stakeholders because they answer local food issues. But public actors and public policies support strong and well identified models – conventional and alternative ones. Intermediary initiatives do not find visibility in that political landscape and receive little/no political support; they develop and maintain through local actors' practices, apart from institutional programs or political support and bear more local community's expectations than a political vision. They remain scattered and fragile in the face of urban policies and rapid transformations in the urban fringe but they are signals of positive on-going changes.

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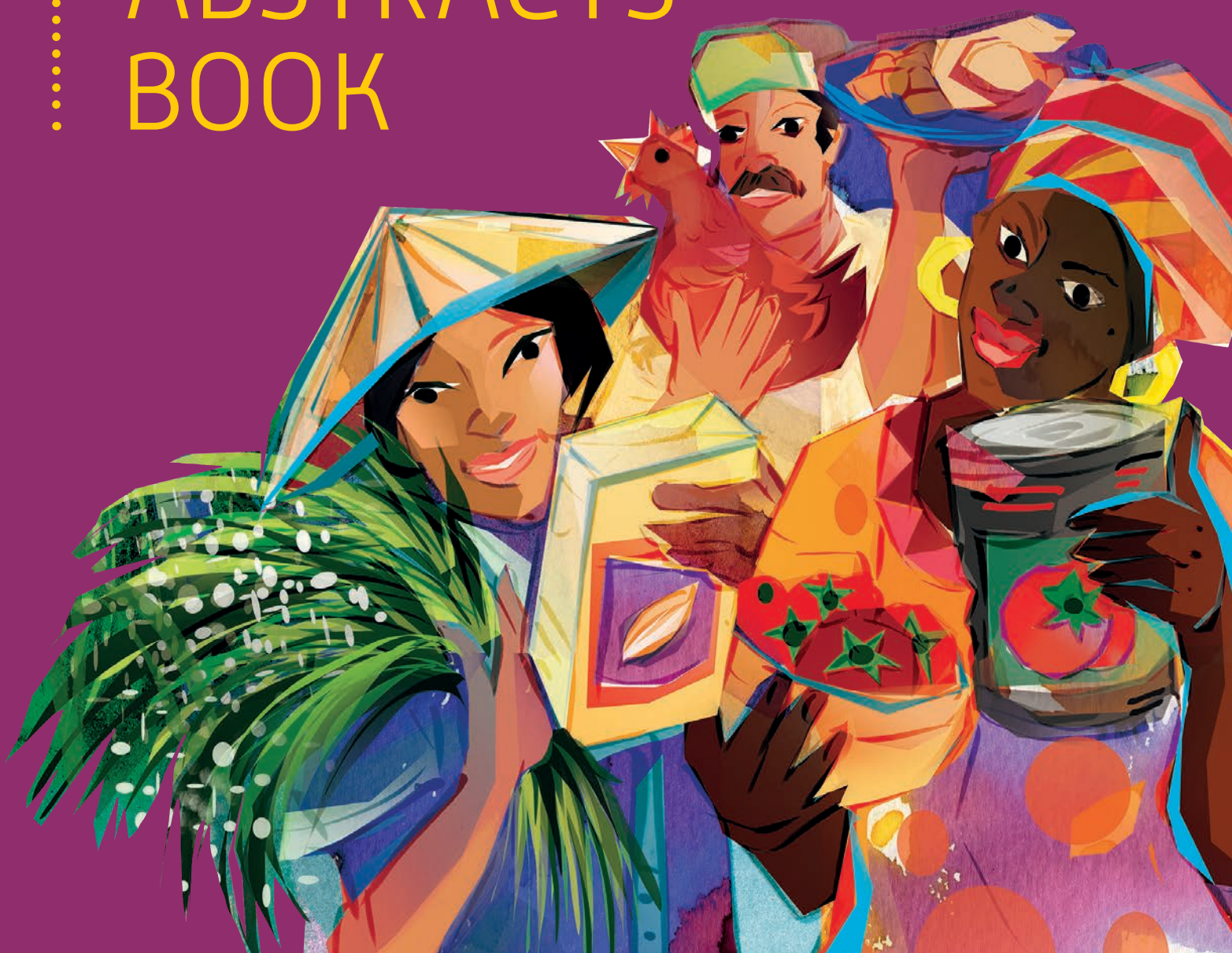

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Welcome to AC&SD 2016

On behalf of the Scientific and Organizing Committees, it is a great pleasure to welcome you to the International Conference on Agri-chains and Sustainable Development (**AC&SD** 2016). This conference aspires to widen the debate about the role of agricultural value chains towards sustainable development. Year 2015 was a critical political and diplomatic milestone: the member states of the United Nations signed a new agenda for development, with the 17 Sustainable Development Goals (SDGs) placing sustainability at the core of international efforts. Development and academic actors are since then exploring new avenues for translating the SDGs into reality and implementing global and local frameworks and partnerships. Our conference aims at joining these efforts, with the consideration that agricultural value chains form spaces where local and global challenges to sustainability connect and within which local and global actors experiment and negotiate innovative solutions.

The scientific committee has assembled a very attractive program for **AC&SD** 2016 that seeks to cover and confront the diversity of realities behind agri-chains, from localized chains, embedded in specific places, to global value chains. In the parallel sessions, transformations of these agri-chains and their connections to sustainable development will be discussed by speakers from the academia, the civil society, the private sector and decision makers. This multi-stakeholder perspective will also be brought about in the plenary sessions. Here, world renowned keynotes and panelists to three high level round tables will discuss about the role and importance of evaluation, public and private institutions and innovations at different scales for transforming agri-chains towards sustainability transitions.

This edition gathers about 250 participants from 39 countries. **AC&SD** 2016 owes a lot to the scientific and organizing committees for preparing the program, and particularly to Brigitte Cabantous, Chantal Carrasco and Nathalie Curiallet for all the logistics, as well as to our support team of Alpha Visa that we warmly thank for their help.

We wish us all a fascinating, successful, inspiring and enjoyable **AC&SD** 2016 and we very much look forward to its result and to the strengthening of both a scientific community and a community of practice to implement the outcome!!

Estelle Biénabe, Patrick Caron and Flavia Fabiano,
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Session 10

Innovations in approaches and tools for inclusive and efficient value chain development

Session 11

Linking global value chains and territories: conceptual insights for understanding and ensuring sustainability at different scales